

ABSTRACT

A production stabilizing device and a method produce a multicomponent film containing metal components such as TiAlN having greatly different melting points at high material use efficiency and in a good film quality by using a single crucible (3) and converged plasma (7). For this end, electric power required to evaporate material (4) is first supplied and then electric power stepwise increased from the first electric power is repeatedly supplied until a required maximum electric power is reached. Alternatively, plasma control is performed for converging the plasma (7) into an initial area required to evaporate the material and subsequently plasma control is performed for successively and stepwise moving and expanding the plasma from the initial plasma area up to a maximum plasma area to gradually melt a non-melted portion (4b) of the material. The material is a sintered compact or a green compact (4).